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In the Specification

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Please amend lines 4-25 as set forth below:

BRIEF DESCRIPTION OF THE DRAWINGS

Exemplary embodiments of the invention will be described with reference to the drawings, wherein like numerals represent like parts, and wherein:

Figure 1 is an exemplary test patch pattern used for calibrating a marking system;

Figure 24 is a functional block diagram illustrating an exemplary marking system;

Figure 32 is a diagram showing an exemplary gray balanced TRC, spatial gray balanced TRC and non-uniformity profile function obtained;

Figure 43 is a functional block diagram illustrating an exemplary digital photocopier;

Figure 54 is a functional block diagram illustrating an exemplary spatial profile generating device;

Figure 65 illustrates an exemplary test patch pattern for obtaining a spatial color profile;

Figure 76 illustrates an exemplary test patch pattern for calibrating a marking system;

Figure 87 is a flowchart illustrating an exemplary method of obtaining spatial gray balanced tone reproduction curves;

Figure 98 is a flowchart illustrating another exemplary method of obtaining spatial gray balanced tone reproduction curves; and

Figure 109 is a flowchart illustrating an exemplary method of obtaining a spatial color profile.

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Please amend lines 21-30 as set forth below:

The K values obtained for the patches and the CMY values obtained for the patches 150, which may have been revised, along with the CMY and K values for the patches 110 and 120 during the above-described iterative process, are used to create non-uniformity profile functions, which are in turn used, in combination with the one-dimensional, gray balanced TRCs obtained from the patches, to generate spatial gray balanced TRCs. An example, is shown in Fig. 32, which is a diagram showing an exemplary cyan TRC 910 obtained using CMY patches 110. A non-uniformity profile function 920 obtained using patches 150 is operated with the TRC to obtain a spatial gray balanced TRC 930.

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Please amend lines 11-29 as set forth below:

Attention is now being directed to Fig. 43 which shows a functional block diagram illustrating exemplary digital photocopier 600 similar to marking system 200 in Fig. 1, except that the digital photocopier may be self-contained because it includes image pickup device 270, such as a scanner, and user input device 400, and therefore is not reliant on an external data source (although an external data source may also be connected, if desired).

Attention is now being directed to Fig. 54 which shows a functional block diagram illustrating exemplary spatial profile generating device 700. Spatial tone reproduction curves can be considered as spatial profiles of a test pattern. However, the spatial profile generating device is not limited to application to a marking engine, and may be used to generate a spatial color profile of any surface. The spatial profile generating device includes a reflectance value obtaining device 260 and spatial color profile generator 280, and is connected to data sink 500 and user input device 400 via links 510 and 410, respectively. Links 510 and 410, like link 310 of Fig. 1, may be any suitable wired, wireless or optical links. Data sink 500 can be any device that is capable of outputting or storing processed data generated by the spatial profile generating device, such as a printer, a copier or other image forming devices, a facsimile device, a display device, a memory, or the like.

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Paragraph bridging Page 17 & 18

Please amend Page 17, line 30 through Page 18, Line 9 as set forth below:

Attention is now being directed to Fig. 65 which illustrates exemplary test patch pattern 102 used for obtaining a spatial color profile using the spatial profile generating device of Fig. 54. Assuming there is spatial non-uniformity across the surface to be profiled, relative movement between the reflectance value obtaining device should be effected in the direction of greatest non-uniformity. Patches 150 represent actual color patches of an actual surface. It should be appreciated that the patches may not actually be visibly separate patches, but may instead merely represent individual positions on a continuously colored surface. Examples of uses for the spatial profile generating device, other than for calibrating a marking system, might include coil coating applications, painting, etc.

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Please amend lines 10-30 as set forth below:

Attention is now being directed to Fig. 76, which illustrates another test patch pattern 104 used for calibrating the marking system 200. From this example, it can be seen that single elongated patches 142 and 152 may be used in place of the plurality of patches 140 and the plurality of patches 150. In this case, a plurality of reflectance measurements are taken along each patch 142 and 152, triggered by the fiducial marks 130. It should be appreciated that the fiducial marks are not necessary if some other method of triggering the reflectance sensor is used.

It should also be appreciated that the patches 110 and 120 need not be near the middle of the page, as shown in Fig. 1, or near the bottom of the page, as shown in Fig. 6, but may be at any other location on the page as desired or convenient. Those skilled in the art will also appreciate various other possible modifications of the test pattern. For example, rather than providing patches 140 and 150 or 142 and 152 as shown in Figs. 1 and 76, a plurality of sets of the patches 110 and 120 may be provided. For example, considering the patches 110 and 120 of Fig. 1 as a single "row," a plurality of such "rows" could be printed, such that patches of each "row" would align with corresponding patches of the other "rows." Corresponding patches of the rows would thus form "columns" extending in the fast-scan direction. Selected ones of these "columns" could then be used in the same manner as the patches 140 and 150 or 142 and 152 of Figs. 1 and 76.

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Please amend lines 10-30 as set forth below:

Other conceivable variations on the test patterns of Figs. 1 and 76 are that the CMY patches and K patches could be mixed, and/or that the number of K patches could differ from the number of CMY patches. For example, the patches 110 shown in Fig. 1 could be replaced by seven K patches varying from 0-100% coverage and three CMY patches at 100% coverage, and the patches 120 could be replaced by CMY patches that vary from 0 to a number slightly less than 100% coverage.

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Paragraph bridging Page 19 & 20

Please amend Page 19, line 8 through Page 20, Line 2 as set forth below:

Attention is now being directed to Fig. 8Z which shows a flowchart illustrating an exemplary method of obtaining spatial gray balanced tone reproduction curves. Beginning in step S1000, the process continues to step S1050 and generates a test pattern file in device dependent space, such as CMYK space. This is done based on pre-stored and/or user-input information. The test pattern is marked on a substrate in step S1100. The process then continues to step S1150 wherein measured reflectance values of test patches of the test pattern are obtained using, for example, a spectrophotometer or the like. Continuing to step S1200, the measured reflectance values are compared to desired values, and in step S1250, the measured reflectance values are processed to obtain revised device dependent values, e.g., revised CYMK values. The process then continues to step S1300 and determines whether to continue an iterative process. This determination may be made based on, for example, whether the difference between the measured values and desired values compared in step S1200 is within a predetermined threshold. If it is determined to continue the iterative process, the process returns to step S1050 and updates the test pattern file, and steps S1050-S1300 are repeated. Otherwise, the process continues to step S1350 wherein one-dimensional gray balanced TRCs are obtained using the measured reflectance values, from the most recent iteration of step S1150, of test patches in the test pattern that are arranged in a slow-scan direction. The process continues to step S1400 and obtains spatial gray balanced TRCs by using the one-dimensional gray balanced TRCs and the measured reflectance values, from the most recent iteration of step S1150, of test patches in the test pattern that are arranged in a fast-scan direction. These spatial gray balanced TRCs are saved to be used, for example, for calibrating a marking system, and the process stops at step S1450.

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Please amend lines 3-30 as set forth below:

With reference now being made to Fig. 98, a flowchart illustrates yet another exemplary method of obtaining a spatial color profile. Beginning in step S2000, the process continues to step S2050 and generates a test pattern file in device dependent space, such as CMYK space. This is done based on pre-stored and/or user-input information. The test pattern is marked on a substrate in step S2100, based on the test pattern file and on a stored spatial gray balance TRC. The process then continues to step S2150 wherein measured reflectance values of test patches of the test pattern are obtained using, for example, a spectrophotometer or the like. Continuing to step S2200, the measured reflectance values are compared to desired values, and in step S2250, the measured reflectance values are processed to obtain revised device dependent values, e.g., revised CYMK values. Next, in step S2300, one-dimensional gray balanced TRCs are obtained using the measured reflectance values, from the most recent iteration of step S2150, of test patches in the test pattern that are arranged in a slow-scan direction. The process continues to step S2350 and obtains spatial gray balanced TRCs by using the one-dimensional gray balanced TRCs and the measured reflectance values, from the most recent iteration of step S2150, of test patches in the test pattern that are arranged in a fast-scan direction. The process then continues to step S2400 and determines whether to continue an iterative process. This determination may be made based on, for example, whether the difference between the measured reflectance values and desired values compared in step S2200 is within a predetermined threshold. If it is determined to continue the iterative process, the process returns to step S2100 and revises the spatial gray balanced TRC, a new test pattern is marked based on the revised spatial gray balanced TRC the test pattern file, and steps S2100-S2350 are repeated. Otherwise, the process retains the most recent spatial gray balanced TRC for, for example, subsequent calibration of a marking system, and continues to step S2450 and stops.

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Please amend lines 1-21 as set forth below:

Reference is now being made to Fig. 109 which shows a flowchart illustrating an exemplary method of obtaining a spatial color profile. Beginning in step S3000, the process continues to step S3100 and obtains a plurality of measured reflectance values from respective locations spaced along a surface, preferably in a direction of known or suspected non-uniformity. Next, in step S3200, a spatial color profile of the surface is generated based on the measured reflectance values. The process then continues to step S3300 and stops.

The marking system of Fig. 24 and the spatial profile generating device of Fig. 54 may be implemented on a single program general purpose computer or separate programmed general purpose computer, with an associated reflectance value obtaining device 260 (and marking device 230, in the case of Fig. 24). The marking system and spatial profile generating device can also be implemented on a special purpose computer, a programmed micro-processor or micro-controller and peripheral integrated circuit element, an ASIC or other integrated circuit, a digital signal processor, a hard-wired electronic or logic circuit such as a discrete element circuit, a programmable logic device such as a PLD, PLA, FPGA, PAL, or the like. In general, any device capable of implementing a finite state machine that is in turn capable of implementing the flowcharts shown in Figs. 87 -109, or appropriate portions thereof, can be used to implement the marking system and/or spatial profile generating device according to this invention.